

**VECTREN ENERGY DELIVERY
OF INDIANA, INC.'S**

RESPONSES TO THE

INDIANA UTILITY REGULATORY COMMISSION'S

ELECTRIC SERVICE QUALITY RULEMAKING

DATA REQUEST

January 15, 2003

Table of Contents

Reliability	1
Service Interruption and Outages	
Sustained Outage	1
Momentary Outages	6
Performance Measures and Statistics	7
Worst Circuits	10
Power Quality	12
Leading Indicators	14
Setting Performance Standards	18
Safety	19
Customer Service	22
Charts	28

Electric Service Quality Rulemaking Data Request

Reliability:

The area of reliability will include the examination of sustained outages, momentary outages, restoration of service following a sustained outage and power quality.

1. **Is your utility participating in any EPRI (or other organizations) research projects relating to reliability or other service quality issues? If yes, please describe the project(s) you are involved in and how it relates to reliability issues addressed in this section of the data request.**

No. However, we do participate in activities through a number of organizations, including the Midwest Energy Association and Indiana Electric Association. We actively participate in round tables, operation conferences and workshops.

Service Interruption and Outages

Sustained Outages:

1. **How does your utility identify an outage?**

Distribution – A Customer calls in to report an electric outage. The customer may speak to one of our customer service specialists (CSS) who enters the location, customer name, and telephone information into our computer system. The customer may select the option to enter this information direct using our interactive voice response (IVR) system. After the outage information is entered, it is transferred to the PowerOn System which notifies Electric Dispatch of an electric outage. The PowerOn System makes a prediction of the location of the protective device that has operated based on the number and location of calls received. This provides the location of the outage.

Transmission – Outages resulting from transmission facilities being out of service are automatically identified in our Transmission System Operations (TSO) control center by our Supervisor Control and Data Acquisition (SCADA) system.

At what point does your utility consider an outage a “sustained” outage versus a “momentary” outage?

“Momentary” \leq 1 Minute

“Sustained” $>$ 1 Minute

2. **Please describe the response process once an outage is identified.**

The PowerOn System predicts the protective device that has operated based upon the number and location of calls received, and approximates the area of circuitry and associated customers experiencing an outage. A Field Investigator

will be assigned to conduct a detailed investigation of the predicted outage problem. Based on the information obtained, the number of repair crews necessary for service restoration is determined. If the Field Investigator can restore service by closing a protective device (no system damage), service is restored without further repairs. If system damage exists, a crew is dispatched, and they provide an "Estimated Time of Repair" to Electric Dispatch after they arrive on the job site and assess the amount of work required to make the repair. Repairs are made in order to restore the system to normal operation.

Has your response process changed in the past five (5) years? If so, please explain these changes.

- Yes. All outage calls are now taken centrally for the entire electric system. Outage calls were previously taken by each local operating area.
- Outage reports are now entered electronically instead of taken on paper.
- Customers can talk to a representative or may enter their outage information through an IVR.
- The PowerOn System automates the prediction of which protective device has opened based on call information. In the past, a process of manually sorting paper tickets and human interpretation was used to predict the open protective device.
- Field investigators are centrally dispatched out of Evansville, and are no longer individually dispatched from the local operating area.
- Construction crews are required to give an estimated time of restoration to provide the customer with more information regarding their restoration.

What follow-up is done after service has been restored to determine that an individual customer, once again, has electric service?

After the electric outage event is reported as "Restored" by the Outage Management System, the IVR contacts the customer to validate that service has been restored. If no answer is obtained, the IVR calls back again in 30 minutes. If the customer reports that service has not been restored, a new outage report is created. Customers may select not to be called back upon restoration of service.

3. Under what conditions or circumstances does your utility report an outage to the Commission?

Rule 21 of the "Rules and Regulations of Service for Electrical Utilities in Indiana" requires reporting of any unintentional interruption of electric service to any community. The guidelines to be used in this reporting are:

- A. Services must be interrupted to the entire community. (For example, if two circuits feed a community with a part of the community on each circuit, the loss of only one circuit would not be reportable. The loss of both circuits at the same time would be reportable).
- B. A successful automatic reclosing operation is not reportable. A tripped circuit that is closed by supervisory control would be reportable.
- C. We are required to report at the “earliest practical moment” (regular working hours) following the incident.

REPORTING PROCEDURES

The information listed below is to be provided:

- 1. The name of the community or communities.
- 2. The date and time of the interruption.
- 3. The restoration time and length of outage.
- 4. The cause of the interruption.

Since January 2001, how often have you reported an outage to the Commission? How often did you provide updates on the outage and the restoration of service?

Since January 2001, one outage has been reported to the Commission. On July 21, 2002, the community of Rockport, Indiana experienced a fifty-five minute outage. The reporting was done in accordance with Rule 21. The report included information regarding restoration of service.

- 4. **Outages resulting from major weather events can somewhat be anticipated; please describe the weather event outage response from the time a weather situation is known or anticipated to exist through the time the last customer is brought back online. Please describe any facilities and/or procedures that are specifically used in anticipation of, or during, a major weather event in case of widespread outages.**

Electric Dispatch, centrally located in Evansville, monitors the weather in several ways:

Weather Channels, Weather Software that sends alerts of approaching severe weather, Intellicast.Com and by communicating with the Weather Bureau in Paducah, Ky. In the event the weather looks threatening, the decision may be made to gear up to a Level II storm condition. This means staffing up for call taking, preparing field investigations and organizing construction crews. Communications to company management are made according to the organization described in the Emergency Electric Operation Procedures. All levels of management are engaged to support communications to the public, establish outside resource needs and support sources. Call taking and outage

analysis is performed similar to normal outage situations utilizing the systems already described.

Are the facilities and/or procedures different depending on the type of weather event, for example tornado conditions versus a potential ice storm?

No.

Are there non-weather related outage situations when these facilities and/or procedures are used?

Fortunately there has not been an occasion to implement a major outage restoration scenario other than for weather related events. However, in the event of a major system failure, the same organization and Emergency Operating Procedures would apply.

5. **What other government (local, state, federal) agencies or organizations must your utility interact or communicate with during outage situations? Specifically, are there other agencies or organizations that your utility is required by law or regulation to report to or communicate with during outage situations?**

For transmission system outages or disturbances of sufficient level, as prescribed in the North American Electric Reliability Council (NERC) Policy 5 Appendix 5F, and the Department of Energy (DOE) form EIA-417, Vectren is required to notify the East Central Area Reliability Coordination Agreement (ECAR), NERC, the Midwest Independent System Operator (MISO), and the DOE.

6. **Are there other agencies, organizations or companies that your utility typically interacts or communicates with during critical outage situations?**

Vectren communicates as appropriate with neighboring utilities per NERC policy 6 during transmission line outages.

On a local level, we communicate with Emergency Management Agencies and Central Dispatch for Police, Sheriff and Fire Departments.

Please describe the circumstances and types of interactions or communications that occur.

Emergency Management Agencies ask for information regarding the number of customers affected, amount of damage and estimated time of restoration.

The local police department's Central Dispatch will notify us of hazardous situations, wire down, poles down, or other major damage.

7. What is the policy concerning the use of service crews from other utilities?

Contained in the Emergency Electric Operating Procedures is the Midwest Mutual Assistance Roster that contains the listing of companies and their contacts in the event mutual assistance is needed. In the past when it has been determined that outside resources are needed, we have called in neighboring utilities to assist. As they are often affected by storm damage as well, often, we call in contractor crews instead of other utilities.

Guidelines:

Level I Storm – Short duration with restoration of service completed in less than 12 hours, affecting isolated areas. Restoration can be handled by the normal workforce of the organization.

Level II Storm – Moderate damage that can be repaired and all service restored in 12 to 36 hours. Some emergency operating procedures will go into effect. The Disaster Restoration Officer will direct the overall emergency operations organization and the Operations Director will direct the physical restoration process. Personnel from other departments will be required. Also, Outside Crews may be required.

Level III Storm – Severe damage that will require over 36 hours to restore all electric service. The Disaster Restoration Officer will direct the emergency operations organization, and the Operations Director will direct the physical restoration process. Outside crews and other departments personnel will be required.

Has the ability of crews or the willingness of other utilities to make crews available become more limited in recent years?

No. However, we have not had the need to contact others for assistance in quite some time.

Are non-utility crews being used or considered more routinely than requesting crews from neighboring utilities?

Yes, we first utilize a non-utility crew (contractor) if we have them available to us. Sometimes we have these crews already on our property because we are contracting out “normal work” to them. Also, as stated previously, if a neighboring utility is also affected by weather, their personnel are being utilized by them and we would need to use a non-utility crew.

8. What type of information does your utility typically gather/report/analyze regarding sustained outages?

Interruption Reports – These provide information about the outage such as the duration, number of customers affected, cause, protective device and the specific description of the outage.

Maintenance Orders

Equipment Failure Reports

How is this information used in the utility?

Interruption Reports provide a history used to evaluate system problems, identify causes of outages, study potential trends and problem areas. These reports are also utilized to review customer inquiries regarding outage claims.

Review of recurring maintenance order types can identify common root causes.

Equipment Failure Reports are used to track types of equipment or manufacturers of equipment that are involved to determine what might fail in the future.

9. Does the utility attempt to quantify the financial costs of outages to customers and local communities? If so, please explain how this is done.

No, we do not have any specific data of the financial costs of an outage.

Momentary Outages:

1. Does your utility identify and track momentary outages?

Momentary outages are not tracked in the Interruption Reporting system. However, individual customer inquiries concerning momentary outages are investigated and followed up on with appropriate action.

How is a momentary outage identified and/or defined?

A momentary outage is defined as an outage up to 1 minute.

2. What type of information does your utility typically gather/report/analyze regarding momentary outages?

Not applicable.

How is the information used in the utility?

Not applicable.

3. Other than the duration of the outage, are there operational or characteristic differences in a sustained outage versus a momentary outage?

A momentary outage would indicate that the automatic protective device on a circuit (sectionalizer, recloser, breaker) has operated correctly to allow a fault condition (squirrel, tree limb, etc.) to clear itself from the circuit.

A sustained outage would likely require human intervention (make repairs, close fuse, etc.) to restore service.

Performance Measures and Statistics

1. Typical reliability performance statistics include SAIDI, CAIDI, SAIFI, etc. How is each of the variables in each of the calculations defined? Are these statistics calculated as part of your outage management system or through some other means?

We currently calculate SAIDI, CAIDI, and SAIFI. These statistics can be calculated for a district, a circuit, or for the entire system. The statistics can also be calculated for outages with a certain cause and subcause within a district or for outages with a certain repair action. The SAIFI, SAIDI, and CAIDI definitions are from Cooper's Reference Data Sheet R280-90-7. Yes, these statistics are calculated as part of our PowerOn outage management system.

- SAIFI = total number of customer interruptions / total number of customers served
- SAIDI = sum of customer interruption durations / total number of customers
- CAIDI = sum of customer interruption durations / total number of customer interruptions
- Total number of customer interruptions = the sum of the number of interruptions experienced by each customer connected to the system in the specified area
- Sum of customer interruption durations = the sum of the durations of all customer interruptions
- Total number of customers served = sum of the customers connected to the system in the specified area
- Total number of customers = sum of the customers connected to the system in the specified area

2. **Are there other reliability statistics your utility calculates? What are they? How are they calculated? How are the variables used to calculate them defined? Are these statistics calculated as part of your outage management system or through some other means?**

Other reports that are being developed for reliability statistics focus on the timeline for the various tasks involved in the Electric Emergency Response Process. These reports will be generated from data captured in the outage management system.

3. **Does your outage management system calculate other reliability statistics that your utility does not routinely review? What are these statistics? How are they calculated? How are the variables used to calculate them defined?**

No. The statistics referenced in questions 1 and 2 have provided us with the data needed to report and manage outage information.

4. **Reliability statistics are often calculated excluding storms or other major outage events. What are the advantages and disadvantages to excluding storms or other events? Do reliability statistics typically calculated by your utility include or exclude storms or major outage events? If these events are excluded, how do you determine when to exclude an outage event? How do you define the different levels of outage events?**

Our reports in the past and in our current system support calculating the statistics with major storms and without major storms. The advantage of excluding major storm events from reliability statistics is to avoid skewing the trending of historical reliability data with infrequent and/or large deviations in data. The intent of trending of historical data is to establish a baseline performance measure for “normal” conditions. Since “major events” are not “normal,” they need to be excluded to better determine what should be “normally” expected. The storm levels that have been implemented in the outage management system include a level 1 storm, level 2 storm, level 3 storm, and major event. Storm levels 1, 2, and 3 are defined above in response to “Service Interruption and Outages question # 7. A major event is an event, weather-related or not, that applies forces beyond system design and results in major damage.

5. **How do service territory differences (e.g., rural versus metropolitan, high industrial concentration versus more residential) affect the calculation of reliability statistics? What statistic, if any, is most indifferent to the service area characteristics -- in other words, what statistic(s) would most likely allow relevant comparisons among a wide variety of utility types?**

Service territory differences that affect the performance of service reliability include:

1. load density which influences system design;

2. service area geography which can influence response time;
3. local climate which can influence the number of weather related outages; and
4. electric system design which can influence the number of outages and restoration times.

Vectren is not aware of any statistics that would allow relevant comparisons among a wide variety of utility types.

6. Can the calculation of reliability indices be standardized among Indiana utilities? Please explain how that might be done.

Vectren believes the calculation of reliability indices can be standardized among Indiana utilities. This would be done by selecting specific reliability indices (i.e., SAIDI, CAIDI, SAIFI, etc.), adopting industry standard definitions and formulas for the selected indices, and providing further definition concerning what should and should not be included, as well as providing definitions for such items as momentary interruptions and major storms in order that all utilities are consistent in what is included and/or excluded from the calculations. Although we believe the calculation can be standardized, we do not believe “performance targets” should be standardized or the same for all Indiana utilities. (See answers 5 and 7.)

7. Should utility size or other characteristics be taken into consideration when evaluating the reliability statistics from a company?

Vectren believes each utility's unique characteristics must be taken into consideration when evaluating reliability statistics. Characteristics such as load density, service area geography, local climate and electric system design practices have significant influence on reliability statistics.

8. Are performance evaluations and the resulting compensation for any individual, groups of individuals, or divisions of the utility tied to reliability statistic results? Please explain what reliability statistics are used and who is evaluated based on the results of those statistics. How are the acceptable levels of performance set and what are those levels?

Vectren has tied reliability statistic results to performance evaluations and the resulting compensation in the past. In the past, CAIDI, SAIDI, and SAIFI reliability results for particular geographic area of responsibilities were used to evaluate the performance of Director and Managers of Electric T&D Operations. In addition, Supervisors over specific areas of responsibility were evaluated on their performance using reliability indices such as:

Supervisor of Substation – Substation Equipment Failure related SAIFI.
Supervisor of Line Maintenance – Line Equipment Failure related SAIFI.

Acceptable levels of performance were initially set using industry-wide averages and targets. As we established our own historical data, acceptable levels of performance were established based on the average of our own past annual indices for specific area of responsibilities.

Worst Circuits

In order to prevent utilities from having “pockets” of poor service reliability, some state commissions require utilities to report the top 10-25 worst circuits and then address those problem areas.

1. Are there areas of your utility’s service territory that are more prone to outages, either sustained or momentary, or other reliability problems, such as power quality, than others? How does your utility address this type of problem?

Yes, there are areas of the electric service territory that are more prone to service problems than others.

Vectren implemented a new GIS-based Outage Management System (“OMS”) in November of 2001 and has spent the majority of 2002 refining reporting and processes to integrate the new system. The following discussion addresses this issue before the new OMS and how Vectren plans on using the new system.

1. Before PowerOn OMS:

Prior to implementing the PowerOn OMS, Vectren would locate these problem areas utilizing one or more of the following methods:

- a. Reviewing worst performing circuits by manually locating the protective devices that operated over a specific time period and reviewing the details of each operation to determine the best method of addressing any problem areas encountered.
- b. Generated reports from the Trouble Call Outage Management (TCOM) database sorted by address to locate small areas within a circuit’s coverage area experiencing reduced levels of service. A review of the details of each operation then took place to determine the best method of addressing the problem.
- c. Reviewing details of customer inquiries concerning reduced service quality to determine the nature of the concern and a remedy if possible.

2. After PowerOn OMS:

Vectren can continue to perform items 1a and 1c above; however, item 1b above will be replaced by items 2a and 2b described below. Vectren

continues to refine the reporting capabilities available from the historical tables contained within PowerOn. The following reporting concept has not been implemented but will serve as a reference to the additional capabilities offered by the new PowerOn OMS:

- a. Vectren can write reports that summarize reliability information by individual customers experiencing service problems and sort the report by worst level of performance to best. This report principally will access the "Customer Interaction Archive" table contained within PowerOn's historical database. This table contains the related field entitled "Outage ID" that relates the individual customer service levels back to the individual service problems the customer experienced.
- b. Vectren can write reports that summarize reliability information by the individual protective device that operated and sort the report by the most frequently operating device, or some combination of frequency of operation, and number of customers impacted. This report principally will access the "Outage Device Archive" table contained within PowerOn's historical database. This table contains the related field entitled "Outage ID" that relates the individual protective devices that operated back to the individual service problems that caused the operation of the device.

2. What are the advantages of identifying the top worst performing circuits of a utility?

Circuit-level reliability performance is captured by nearly all utilities, and can be used as an indicator of poor performing "pockets" of circuitry contained within the circuit coverage area.

3. What are the disadvantages of identifying the top worst performing circuits of a utility?

Vectren's experience has shown that using circuit-level reliability performance to indicate "pockets" of reliability problems can be misleading. Vectren typically has between 800-1200 customers serviced by one 12.47 KV circuit. As referenced in question #2 above, an entire circuit with poor performance can certainly be an indicator of poor performing "pockets" contained therein. However, one can also have 12.47 KV circuits with a relatively good overall performance that still contain "pockets" of poor performing circuitry.

By reviewing performance at the protective device level and the customer level, more effective reliability improvement objectives can be targeted. However, this type of information is difficult to obtain without a fairly robust Outage Management System.

Power Quality

1. **Based on your utility's interaction with its customers, is power quality an important concern of your customers?**

Yes.

What aspects of power quality are of particular concern (voltage sag, high or low voltage, voltage spikes and transients, flickers, surges, harmonics, other)? Please explain.

The power quality issues that generate the most concern with customers include voltage sags, flicker, surges and harmonics. Voltage sags and transients are of particular concern to customers with programmable controllers and other highly sensitive solid state equipment.

Are there typical types of customers or customer classes that voice a greater concern about power quality than others? Please explain.

Yes. Industrial and commercial customers tend to voice a greater concern about power quality. The type of facility normally correlates with the type of power quality problem encountered. Companies that use robotics in their production facility appear more prone to voltage sag problems. Electronic control systems for Robots can be very sensitive to voltage sags. Businesses using arc furnaces or spot welders are more susceptible to creating flicker problems. Typically, the business creating the flicker problems is not as affected by the problem as the other customers on the same circuit.

Residential, commercial, and smaller industrial companies have expressed concerns with surges that can damage equipment.

Harmonics has been an issue for customers that have capacitors. Customers install capacitors and do not account for all nonlinear loads they currently have or nonlinear loads they are planning to install. The non-linear loads, coupled with capacitor installation, lead to harmonic issues. With the increase of customers installing energy efficient Variable Frequency Drives (VFDs), harmonics problems are on the rise. VFDs generate harmonics and capacitors attract and amplify system harmonics. [Potentially, the closer capacitors switch into resonance, the more damage harmonics can cause to capacitors and other equipment.]

How has your utility addressed these concerns?

Power quality concerns are investigated and resolved by measuring the anomalies and applying mitigation techniques. Vectren works with industrial companies to identify problem areas and recommend solutions.

Vectren utilizes a sag generator to assist businesses in locating sensitive equipment and provide possible solutions.

Vectren recently worked with a local company to resolve flicker problems by recommending the installation of a Static Var Compensator (SVC).

For residential customers, Vectren provides some basic consultation and whole house surge protection equipment. Vectren is working with LEA and PSG Enterprises to supply residential surge protection equipment and develop a comprehensive surge protection program. Vectren works with industrial and commercial customers to provide assistance and solutions to surge protection by recommending appropriate equipment for the customer's specific needs.

2. Does your utility have any program or plan in place specifically addressing power quality issues? Please explain.

Yes. Power quality issues are reviewed between the utility Test Engineer and the customer to determine the source of the problem and a course of mitigation.

How have these programs or plan changed over the last five years?

Not applicable.

3. Does your utility collect/track any type of power quality related data? If so, what data is collected and how is it used by the utility?

Voltage sags and surges, high and low voltages, voltage spikes, transients, flicker, and harmonics are measured on-site and correlated to establish a cause and effect relationship with the customer's equipment and/or utility facilities.

Vectren does not currently track specific data on a daily basis. If a customer brings a power quality issue to our attention, Vectren will monitor the customer's facility for data needed to identify and/or resolve the customer's concern. In addition to localized monitoring with power meters, Vectren will utilize MV-90 data to analyze problems.

4. Is power quality data used as a performance measure for compensation for any person(s), groups and/or divisions in your utility? Please explain what data is used and why.

No. There is no direct correlation between power quality resolution and individual or group compensation.

Leading Indicators

While it's important to restore service as quickly as possible following an outage, when practical, it is better to prevent the outage from occurring.

1. What are good leading indicators of possible service outages?

1. Increases in SAIDI, CAIDI, and SAIFI performance indices
2. Station equipment inspections
3. Equipment load readings
4. Vegetation Management inspections
5. Equipment Failure Reports

Does your utility routinely monitor specific aspects of the electric operations or system with the goal of preventing service outages? What do you monitor and why?

Yes. We monitor dissolved gas-in-oil analysis for the degradation of substation transformers and perform infrared scans on substation equipment for thermal hot spots. We also monitor system voltage and currents for overload conditions on substation equipment.

2. Does your utility have a routine inspection and maintenance plan/procedure in place designed to prevent the possibility of service outage? Please explain the plan/procedure.

Yes. Equipment load readings are monitored and recorded. Quarterly inspections at substations are performed on the station equipment for proper operating conditions. Preventive maintenance on substation equipment is scheduled based on the number of fault operations, as well as on criteria set forth by the equipment manufacturer. We also have a vegetation management program which is described below.

3. Has this plan/procedure changed in the past five (5) years? Please explain the changes and why they were made.

The substation maintenance program has not changed significantly in the past five (5) years. The vegetation management program has changed as described below.

4. **Has your utility made any study or analysis as to how successful your inspection and maintenance plan/procedure has been in preventing service outage? Please explain.**

Yes. Substation equipment failure and tree related reliability indices are used to determine the performance of the maintenance plans.

5. **Does your utility have a vegetation management plan/procedure in place designed to prevent the possibility of service outages? Please explain the plan/procedure.**

Yes. Vegetation management for electric distribution and transmission lines consists of:

- Tree trimming
- Tree, brush and vine removals
- Brush Mowing
- Chemical vegetation control

A. Electric Distribution Circuits

A plan is in place to clear distribution circuits of tree hazards and other vegetation conditions approximately every four (4) to five (5) years – i.e. cycle clearing. A work planner inspects each distribution circuit that is scheduled for line clearing during the current year. This person identifies all tree hazards and other vegetation conditions, documents the work that is required and attempts to notify the property owner. The work is then assigned to an appropriate crew. Three (3) years after clearing, the three phase segments are inspected annually. Tree hazards that cannot be removed during the normal cycle are identified and corrective work scheduled.

A portion of distribution circuits are evaluated on an “off-cycle” basis for tree hazards. This procedure involves inspecting the entire circuit annually and correcting any tree hazards that may cause a problem during the current year. Other vegetation conditions are addressed as appropriate.

In addition, suspect tree conditions reported by company personnel, property owners and the public are inspected and the hazard corrected if it is discerned the problem cannot be postponed until the next scheduled line clearance cycle.

All work must conform to our written specification. The specification is designed to provide the following benefits:

- Improved electrical reliability
- Reduced cost
- Improved customer satisfaction
- Work performed in a safe and professional manner
- Industry standards are met

B. Electric Transmission Lines

The electric transmission system is aurally inspected by helicopter twice a year. Tree hazards and right-of-way conditions are identified, prioritized and documented. Locations requiring work are assigned to appropriate crews.

In addition, electric transmission lines located within the City of Evansville are inspected annually from the ground and all tree hazards are identified and documented. Locations requiring work are assigned to appropriate crews.

6. Has this plan/procedure changed in the past five (5) years? Please explain the changes and why they were made.

Yes. Three (3) years after clearing, the three phase segments of cycle cleared distribution circuits are inspected annually. Tree hazards that cannot be postponed until the following year are identified and corrective work scheduled. This additional inspection and work scheduling is done in order to improve electrical reliability. Previously the circuit would not be inspected until its next normal cycle year.

7. Has your utility made any study or analysis as to how successful your vegetation management plan/procedure has been in preventing service outage? Please explain.

Yes. Tree related outages are continually tracked and monitored. The tree related System Average Interruption Frequency Index (Tree Related SAIFI) is calculated monthly and year to date and a report is generated on a monthly basis. This report is evaluated to measure the success of the vegetation management program.

8. Does your utility identify/track the age of equipment used in the production and delivery of electricity to the customer? Why or why not?

Yes, in order to determine any correlation between problems and equipment age.

9. **Could equipment age be used as a leading indicator of potential service outages? Would this be an effective indicator of potential service outages? Please explain.**

Not necessarily. Properly maintained, equipment should continue to function regardless of age unless it has a consumable component based on age.

10. **Does your utility track equipment used in the production and delivery of electricity to the customer to identify equipment that tends to have a premature or unpredicted failure rate or degraded performance level? Why or why not?**

We have an equipment failure reporting process established. The purposes of equipment failure tracking are to identify types of utility components that do not perform as expected, and to identify manufacturers of utility components whose products perform poorly in comparison to their peers. We also track the location and identity of certain types of equipment so that we can respond quickly to service alerts/recalls from the manufacturers of the equipment. Equipment failures do increase operating costs and can negatively impact service reliability and public safety.

11. **Could the identification of equipment with premature or unpredicted failure rate or degraded performance level be used as a leading indicator of potential service outages? Would this be an effective indicator of potential service outages? Please explain.**

An equipment manufacturer's warning that a piece of equipment it produced will likely fail in service if it is not replaced or repaired would certainly be an indicator of a potential outage if the location of the defective equipment is known. The collection of equipment failure data that is outage related could also be an indicator of potential outages if the location and identity of all components suspected to have defects is known. However, it is not practical to track the location and identity of all components that may cause an outage on the utility system.

12. **Are there any other methods (e.g., infrared inspections or radio frequency inspections) you carry out to help maintain and/or improve system reliability? Please describe the methods you use.**

Yes. Infrared inspections are performed annually on all substations.

Setting Performance Standards

1. **Does your utility set any type of performance standards relating to service reliability and quality as a method of determining employee and/or division performance for compensation purposes? What are these standards?**

How are they measured? How do they affect the overall compensation for a(n) employee and/or division?

See response to Performance Measures and Statistics Q.8.

2. **Could similar standards be set by the Commission to help evaluate and compare the service quality of Indiana utilities? Please explain why or why not.**

Vectren believes the Commission could set service reliability standards (i.e., SAIDI, CAIDI, and SAIFI) based on five years or more of each utility's own historical data to help evaluate the service quality of that utility. However, we do not believe it would be proper for the Commission to compare service quality among utilities because of the variability in performance between utilities for the reasons indicated in the response to Performance Measures and Statistics Q.7.

2. **If these standards are not appropriate to help evaluate and compare the service quality of Indiana utilities, please suggest some standards that would be appropriate.**

See response to Setting Performance Standards Q.2 above.

3. **To date there has been little or no use of I.C. 8-1-2.5 by utilities to propose performance based rates that would tie utility incentives/penalties to reliability and other measurable performance criteria. Is there a problem with how I.C. 8-1-2.5 is structured that makes it inappropriate or ineffective as vehicle for performance based rates? Please explain.**

From your perspective (utility, customer group, other) what are the pros and cons of performance based rates?

No. Vectren has effectively used the Alternative Regulation statute to obtain approval of certain "incentives" with respect to our regulated gas business. Irrespective of the precise statutory mechanism, defining appropriate criteria that are truly measurable and will not vary due to uncontrollable factors is the starting point. Also critical would be determining the appropriate benchmarks for such incentives on a utility specific basis. Finally, such incentives will inevitably place an emphasis on managing certain aspects of the business. For example, if call response time is established as a performance incentive, this must be balanced against the time devoted to each call, the cost of facilities necessary to improve performance, and the focus on other aspects of customer service.

Safety:

- 1. Is your utility participating in any EPRI (or other organizations) research projects relating to safety? If yes, please describe the project(s) you are involved in and how it relates to safety issues addressed in this section of the data request.**

No, our company is not participating directly in any research projects at this time. However, our Safety staff does participate in several industry organizations which provide us the opportunity to benchmark and discuss best practices on a routine basis. Some of these organizations are the National Safety Council, Edison Electric Institute, American Gas Association, Midwest Energy Association, Indiana Electric Association, Indiana Gas Association and the Indiana Kentucky Illinois Safety Exchange.

- 2. What actions to ensure public safety are taken, both by the utility and other emergency resources, when a live power line has come down? Please explain the activities from the time a live power line is reported down until it has been repaired or rendered safe.**

All wire down trouble orders are handled with a higher priority than other trouble orders. Once investigated the wire is isolated or the employee stands by until the wire can be de-energized.

- 3. In situations where live power lines may be down in multiple locations, how is public safety ensured?**

Public safety is ensured by prioritizing and investigating wires down before other outage orders and by coordinating the wires down outages with known outages. During multiple outages additional resources are utilized from other departments and/or contract services to investigate and ensure public safety as described in Question #2.

- 4. In critical weather situations where widespread areas may experience outages or down power lines, is there any central coordination (beyond each individual utility) of the restoration of service and the repair of down lines? Please explain who does the coordination and what organizations are involved.**

No. However, we do participate in the Midwest Mutual Assistance effort as one of 35 electric distribution utilities offering outage restoration labor and equipment resources to each other during catastrophic outages.

5. **What could be done to improve the public awareness of the hazards that may exist as a result of weather related power outages?**

How does your utility inform customers of these types of hazards?

Some examples of how to improve the public awareness of the hazards that may exist as a result of weather related power outages are: school education programs regarding electrical safety (kindergarten program), the live line demonstration for emergency response agencies, news media, and the general public when coordinated with public safety events, opportunistic news releases, bill inserts and safety tips on the company web site.

6. **What is the most typical accident involving utility facilities that happens to utility personnel and to non-utility/customers/the general public?**

The most typical accident involving company employees are sprains/strains.

What has your utility done to help try and alleviate these types of accidents?

We address these types of accidents with an employee stretching program, weekly safety talks, an incentive plan and information on the Safety Bulletin Board on the company Intranet. The accident that occurs most frequently to the general public seems to be vehicular accidents involving poles. The Operations Department is aware of this and, when possible, poles are moved from specific locations where they are struck frequently. Also Engineering attempts to move the pole line away from the street when building or rebuilding a pole line.

7. **What is the current average term of employment for service and line crew personnel?**

The current average term of employment for service personnel is 27 years. The current average term of employment for line crew personnel is 21 years.

Does your utility provide ongoing safety training for your line and service crews? Please explain the types of training these crews receive.

The training our employees receive includes an annual eight-hour day of training, i.e., CPR, first aid, trenching and shoring, confined spaces, safe driving, slips, trips and falls. We also have annual hands-on training for shoring, fault locating, cable locating and refresher training for specific equipment/task. We also have training for the required OSHA topics, i.e. hearing conservation, emergency action plan, fire extinguisher, Hazwoper, LOTO/switching, etc.

8. **Commission rules currently require utilities to report accidents resulting in death. Do you think this rule provides useful information to the Commission? Please explain.**

Yes.

Do you have any recommended changes that would make this rule more useful? Please explain.

Specific to an employee death occurring while on the job, it would seem more useful if the same information required by OSHA was required by the IURC: "establishment name, location of incident, time of the incident, number of fatalities, contact person, phone number and a brief description of the incident."

9. **What other organizations or agencies must you report to when there has been an accident, injury or fatality? Please explain what must be reported, under what circumstances and in what time frame from when the incident occurred.**

Per 29 CFR 1904.39, within eight hours after the death of an employee from a work-related incident, or the inpatient hospitalization of three or more employees as a result of a work related incident, Vectren must orally report the fatality/multiple hospitalization by telephone or in person to the Area Office of the Occupational Safety and Health Administration (OSHA). Vectren must communicate the establishment name, location of the incident, time of the incident, the number of fatalities and hospitalized employees, the name(s) of the employee(s), the company contact person and phone number and a brief description of the incident.

10. **The Commission is aware that in preparation for Y2K utilities developed emergency operating plans (EOP). Does your utility continue to maintain and update an emergency operating plan?**

Vectren has developed plans titled Vectren Emergency Electric Operations Capacity and Energy Emergency Plans, Electric Emergency Plan of Operations, and Electric Emergency Operating Procedures. Each plan is reviewed and updated on an annual basis.

What circumstances or conditions is the EOP designed to cover?

The Emergency Electric Operations Capacity and Energy Emergency Plans, and the Electric Emergency Plan of Operations were developed to cover generation deficiency and system-wide blackouts. The Electric Emergency Operating Procedures were developed to cover storm related outages.

Is the EOP prepared and/or modified completely by utility personnel or do other organizations or agencies have input to the plan? Please explain how outside sources have input to the EOP.

The Vectren Emergency Electric Operations Capacity and Energy Emergency Plans, Electric Emergency Plan of Operations, and the Electric Emergency Operating Procedures were developed by Vectren personnel.

Does your utility routinely run drills on the EOP to check the effectiveness of the plan and to identify areas which need improvement? Please describe your drilling procedure.

The Emergency Electric Operations Capacity and Energy Emergency Plans are reviewed annually by the transmission operators and are readily accessible in the event of an emergency, and drills have been performed on portions of the plan. The drills involved dispatching crews to substations that had been identified for intermittent interruption. The plans were developed using criteria and information in NERC Policies 5, 6, and 9, and ECAR Document 13.

The Electric Emergency Plan of Operations was developed for a system-wide blackout. The plan is tested through simulation. The plan calls for the A.B. Brown combustion turbine to be used to restart other generators within the Vectren system. The A.B. Brown steam units 1 and 2 were started using the combustion turbine. The required switching was performed to isolate the steam unit from Vectren's system and to allow a cranking path from the combustion turbine. Although actual switching for the remainder of the plan was not performed during the drill because of the need to maintain service to customers, the remainder of the procedure was covered and reviewed for feasibility. The plan was developed to address NERC Policy 6.

The Electric Emergency Operating Procedures are reviewed annually. Training and drills have been performed on portions of the plan.

Customer Service:

- 1. Is your utility participating in any EPRI (or other organizations) research projects relating to customer service? If yes, please describe the project(s) you are involved in and how it relates to customer service issues addressed in this section of the data request.**

Vectren is currently not participating in any EPRI or other customer service related research project.

- 2. Please describe your utility's customer service philosophy and how your utility implements this philosophy.**

The Customer is one of Vectren's four corporate values and we know our success comes from understanding and satisfying our customers' desires.

Vectren's Customer Service & Marketing mission is to provide high quality, customer-focused relationships and contacts with our valued natural gas and electric customers in a manner that meets or exceeds their expectations. We continuously strive to cost-effectively grow the number of new residential, commercial and industrial customers and retain existing customers. As part of this mission the following customer service goals have been set:

1. We will achieve customer satisfaction levels that are consistent with Vectren being a top-quartile performing utility.
 2. We will implement and manage technology and business processes that enable us to meet or exceed customer expectations for the customer service aspects of providing safe, reliable and cost-effective service.
 3. We will participate in managing the regulatory relationships to ensure compliance with regulatory rules and procedures.
3. **How many employees are directly engaged in customer service types of activities and where do they fit in the utility's overall organizational structure? An organizational diagram may be useful in responding to this question.**

The attached organization chart (Chart # 1) shows the number and organization of employees directly engaged in customer service types of activities. The group outlined below handles all incoming customer service related contacts (i.e. telephone, e-mail, Vectren.com, fax). The group is universally trained to respond to gas and electric customer service inquiries from all of the utility service areas that Vectren Energy Delivery serves (SIGECO, Indiana Gas, Vectren Energy Delivery of Ohio). This group reports to the Vice President of Marketing and Sales who in turn reports to Vectren's President and COO.

4. **Assuming there are a variety of activities that can be considered "customer service" please describe the different types of activities your utility classifies as "customer service" and how many employees are engaged in each activity?**

While Vectren believes that all employees are engaged in the delivery of "Customer Service," the attached chart (Chart # 2) provides an overview of the Customer Service organization and the different activities classified as customer service.

5. **Please provide a brief description of the qualifications required by employees engaged in the various customer service activities described in response to the previous question. Have these requirements and protocols changed over the past five years? Please explain.**

Entry level customer service minimum qualifications are outlined below for a Customer Service Specialist. The education and experience requirements continue to increase based upon the level of the position.

Education

- High School diploma/GED required

Experience

- Experience in a customer service related field, public relations or sales
- Background in a team oriented environment preferred

Skill competencies

- Comfortable with high level of personal accountability for quality and performance improvement
- Excellent interpersonal and communication skills
- Proficient in general math skills
- Strong PC skills

Attitudes

- The candidate must be teamwork oriented and motivated to work in an environment based on achievement and results.

Behaviors and Characteristics

- Self starter
- Positive attitude
- Problem solver
- Team player
- Excellent customer focus
- Dedication to quality
- Good judgement
- Accountability

These qualifications were redefined in 2002 as part of the overall consolidation effort of customer service activities. The primary change in the qualifications in

recent years has been the increased proficiency with PC systems and related skills.

All new Customer Service Specialists go through a 4 ½ week classroom training which includes specific gas leak training and specific power outage training, 3 days of controlled observation and 1 week of controlled incoming call processing for a total of 6 weeks of training.

All Customer Service Specialists also participate in approximately one week of refresher training each year.

6. Please describe any equipment and/or facilities that are specifically designed to help the utility to communicate with its customers and to enhance customer service.

As our customers' lives continue to get busier, we try to implement methods of communication that allow them to transact with us at their convenience. Constant attention is given to the Vectren.com website, which provides customers with a wealth of information, including answers to frequently asked questions and alternatives to common transactions (such as payments). It also gives them the ability to manage their account, submit meter reads, transfer service, etc.

The web site is augmented with our IVR telephonic technology. This allows customers to call Vectren and perform many common transactions via the telephone. Many of these transactions can be done at the customer's convenience and do not require waiting to speak with a customer service specialist.

Vectren also communicates with our customers through bill inserts and messages. We find this method of communication to be effective for transferring safety and community focused information. These messages or new promotions are often synchronized with information on the web site or IVR. This provides customers several opportunities to receive important messages, many of which help them save money or manage their accounts more efficiently.

IVR functionality includes:

- Payment Arrangements
- Payment Extensions
- Phone-in meter readings
- Payments by check or credit card via a Speedpay vendor
- Account balance and date of last payment inquiries
- Paysite locator
- Electric Outage reporting and status information

Vectren.com functionality for non-registered users includes:

- Locate a paysite – find a paysite that accepts Vectren payments
- Order New Service – allows customers to order service at a new address
- Transfer Service – transfer service when moving
- Cancel Service – disconnect service at a specific address
- Make a Payment – payments are made online through a Vendor (Speedpay), by check or credit card
- Various other information including information about Vectren, links to regulatory websites, energy and safety tips, FAQ's.

Vectren.com functionality for registered residential customers includes:

- Billing and payment options – indicates what the account is currently enrolled in and gives options to sign up for Budget Billing, Summer Cycler if applicable, Third Party Billing, Direct Pay and E-Bill
- Viewing Statements – provides the last 12 months of bills
- View Bill Inserts – provides the last 12 months of inserts
- Make a Payment – payments are made online through a Vendor (Speedpay), by check or credit card
- Transfer Service – transfer service when moving
- Cancel Service – disconnect service at a specific address
- Reports and Charts – provides graphs and charts of 12 months of consumption and payment history

7. How does your utility evaluate the quality and performance of your customer service activities?

Vectren utilizes a combination of performance, quality, and customer satisfaction measures to evaluate our customer service activities. The measures include:

- Average Speed of Answer
- Abandon Rate
- Service Level Adherence – percentage of calls answered in a specific time
- Customer Contact Quality Monitoring Score
- Customer Satisfaction Ratings

8. Is the compensation of employees, groups of employees or divisions tied to customer service performance? Please explain how this is done and whom this process affects.

The quality monitoring and performance measures listed above are a key part of customer service staff's individual performance goals. The performance goals are a component of the annual performance appraisal process that results in the determination of an individual's annual merit increase.

Vectren also provides group and individual incentives and awards for meeting quality monitoring scores and call handling statistics.

Customer satisfaction is also a component of the Vectren Incentive Program. The Vectren Incentive Program is an at-risk compensation program which provides financial incentives when specific financial and operational performance results are achieved. Customer Satisfaction is one of the operation goals tied to all employees.

9. What methods or statistics are used to evaluate customer service performance? Please provide a description of the methods or statistics used.

Vectren utilizes a combination of performance, quality, and customer satisfaction measures and benchmarks to evaluate our customer service activities. These include:

- Average Speed of Answer
- Abandon Rate
- Service Level Adherence – percentage of calls answered in a specific time
- Customer Contact Quality Monitoring Score
- Customer Satisfaction Ratings

Chart #1

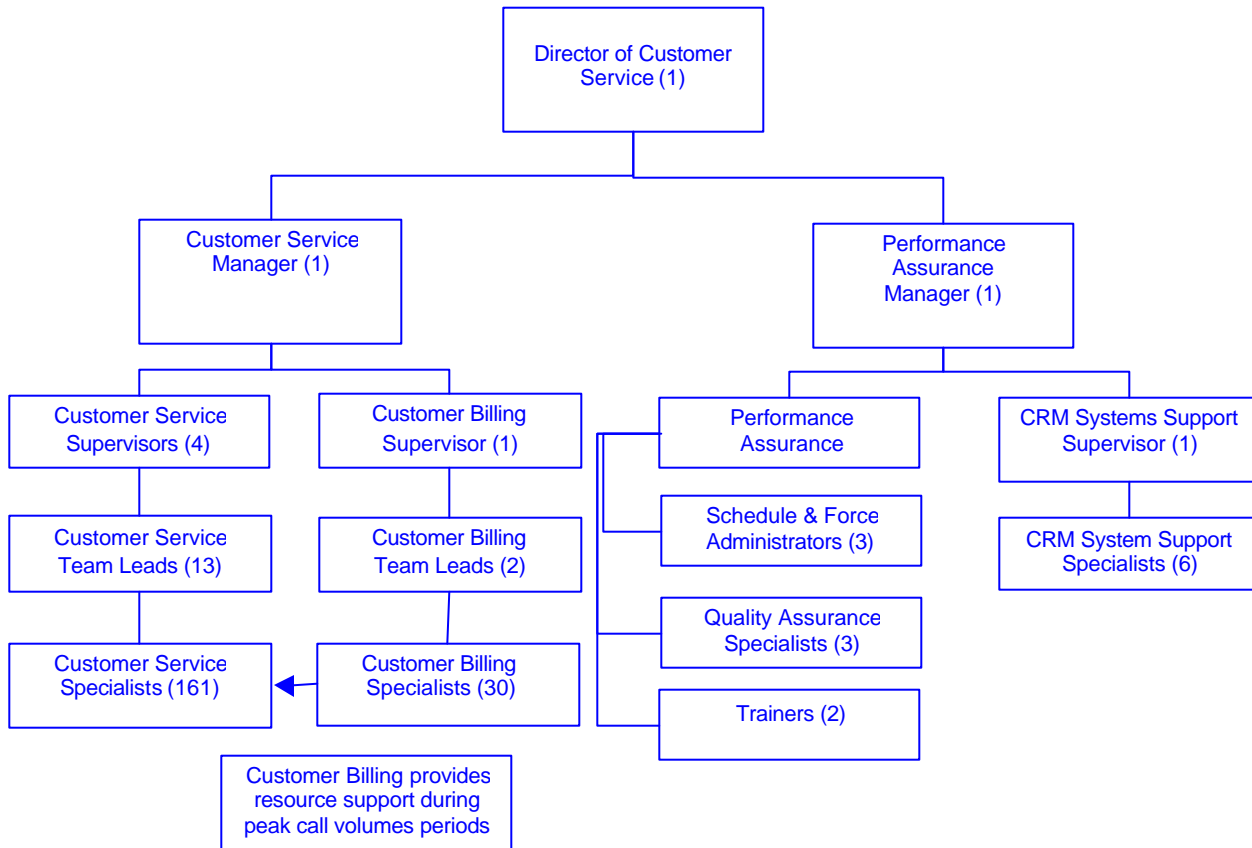


Chart #2

